

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>12509900/EJH/HPM/DYS</b>	<b>FOR FURTHER ACTION</b>		see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. <b>PCT/AU2004/001383</b>	International filing date ( <i>day/month/year</i> ) <b>11 October 2004</b>	(Earliest) Priority Date ( <i>day/month/year</i> ) <b>10 October 2003</b>	
Applicant <b>MEDITECH RESEARCH LIMITED et al</b>			

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 6 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☒ **Certain claims were found unsearchable** (See Box No. II).

3. ☐ **Unity of invention is lacking** (See Box No. III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☒ none of the figures is to be published with the abstract.

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: **1-3, 15-23 (in part)**  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
Claims 1-3 and 15-23 potentially encompass a very large range of compounds and treatments such that a meaningful search covering the full scope of these claims is not feasible. Accordingly, the search has been largely restricted to compounds for which there is descriptive support, namely antibody and nucleic acid antagonists of hyaluronan synthase and hyaluronidase.
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

**Box No. IV Text of the Abstract (Continuation of item 5 of the first sheet)**

Modulation of Hyaluronan (HA) synthesis and degradation is disclosed by compounds and compositions that are capable of reducing the level of hyaluronan synthase (HAS) or hyaluronidase (HYAL) or the function or activity of HAS or HYAL. The compounds and compositions can also inhibit the expression of genetic material encoding these enzymes. The compounds and compositions comprise nucleic acid molecules and interactive molecules such as antibodies, small molecule inhibitors and substrate analogs of HAS and HYAL. The compounds and compositions are useful in the prophylaxis and/or treatment of inflammatory disorders including hyperproliferative conditions, such as but not limited to, cancer and psoriasis.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2004/001383

## A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. 7: C07H 21/04, 21/02; C07K 16/40; A61K 31/7105, 31/711, 31/7115, 31/712, 31/7125, 31/395; A61P 35/00, 29/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

SEE KEYWORDS AS INDICATED BELOW

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

STN: Files WPIDS, CA, Medline, Biosis: Keywords: hyaluronan synthase, hyaluronidase, sense, antisense, antibod?, antagoni?

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	US 6682904 B1 (FROST) 27 January 2004 Whole Document	1, 3-23
P,X	WO 2004/003158 A2 (GENENTECH INC) 8 January 2004 Whole Document	1, 2, 12-23
X	EP 881294 A2 (SMITHKLINE BEECHAM CORPORATION) 2 December 1998 Whole Document	1, 2, 4-23
X	WO 1998/000553 A1 (INCYTE PHARMACEUTICALS) 8 January 1998 See especially pages 26,27,36,37	1, 3, 4, 6-23

☒ Further documents are listed in the continuation of Box C

☒ See patent family annex

- \* Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed
- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search  
15 December 2004

Date of mailing of the international search report

7 JAN 2005

Name and mailing address of the ISA/AU

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2004/001383

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 1998/000551 A2 (MAYO FOUNDATION FOR MEDICAL EDUCATION AND RESEARCH) 8 January 1998 See especially pages 33-34	1, 2, 4, 5, 16-23
X	WO 1997/040174 A1 (LEUKOSITE INC) 30 October 1997 See especially pages 17, 19	1, 2, 4-23
X	NISHIDA et al, "Antisense Inhibition of Hyaluronan Synthase-2 in Human Articular Chondrocytes Inhibits Proteoglycan Retention and Matrix Assembly", The Journal of Biological Chemistry, Vol. 274, No. 31, 1999, pages 21893-21899 Whole Document	1, 2, 4, 5, 7-9, 16
X	BULLARD et al, "Hyaluronan Synthase-3 is upregulated in Metastatic Colon Carcinoma Cells and Manipulation of Expression alters Matrix Retention and Cellular Growth", Int. J. Cancer, Vol. 107 (5), 2003, pages 739-746 Whole Document	1, 2, 4, 5, 16-23
X	SIMPSON et al, "Inhibition of Prostate Tumor Cell Hyaluronan Synthesis Impairs Subcutaneous Growth and Vascularization in Immunocompromised Mice", American Journal of Pathology, Vol. 161, No. 3, 2002, pages 849-857 See especially page 850, Column 1	1, 2, 4, 5, 16
X	SIMPSON et al, "Manipulation of Hyaluronan Synthase Expression in Prostate Adenocarcinoma Cells alters Pericellular Matrix Retention and Adhesion to Bone Marrow Endothelial Cells", The Journal of Biological Chemistry, Vol. 277, No. 12, 2002, Pages 10050-10057 See especially pages 10051, 10056, 10057	1, 2, 4, 5, 16-23
X	ZHANG et al, "Glucocorticoids induce a near-total suppression of hyaluronan synthase mRNA in dermal fibroblasts and in osteoblasts: a molecular mechanism contributing to organ atrophy", Biochemical Journal, Vol. 349 (part 1), 2000, pages 91-97 See Abstract	1, 2, 15-23
X	UEKI et al, "Inhibition of hyaluronan synthesis by vesnarinone in cultured human myofibroblasts", Biochimica et Biophysica Acta, Vol. 1495 (2), 2000, pages 160-167 See Abstract	1, 2, 15-23
X	Derwent Abstract Accession No. 2003-160139/16, Class B05, JP 2002293740 A (SANSEI SEIYAKU KK) 9 October 2002 Abstract	1, 16-23
X	HAKANSON et al, Chemical Abstracts Accession No. 43:15662 & Journal of the National Cancer Institute, (1940-1978), 1948, 9, 129-132 Abstract	1, 16-23

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2004/001383

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member			
US	6682904	NIL				
WO	2004/003158	NIL				
EP	881294	CA	2231723	JP	11009288	JP 2002186495
		US	5994100	US	6350446	
WO	1998/000553	AU	34098/97	US	5854046	US 5958750
		US	6057110			
WO	1998/000551	AU	36522/97	US	6492150	US 6602693
WO	1997/040174	US	6423514	US	2002151026	
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.						
						END OF ANNEX